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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/901,866

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Gerard J. Foschini

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12/20/2004

Docket Administrator (Room 3J-219)

Lucent Technologies Inc.

101 Crawfords Corner Road

Holmdel, NJ 07733

EXAMINER

WILLIAMS, LAWRENCE B

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/901,866

Applicant(s)

FOSCHINI ET AL.

Examiner

Lawrence B Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
 Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2001.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-28 and 30-56 is/are rejected.
 7) ☒ Claim(s) 29 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date _____.
 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date _____.
 5) ☐ Notice of Informal Patent Application (PTO-152)
 6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. This application has been filed with informal drawings, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

3. Claims 18-19 are objected to because of the following informalities: Both claims 18 and 19, cite "the method of claim 1" in line 1. Examiner assumes applicant meant "the method of claim 10" and has evaluated the claim as such.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

5. Claims 1-3, 7, 10-13, 17, 30-31 are rejected under 35 U.S.C. 102(e) as being anticipated by Foschini (US Patent 6,097,771).

The applied reference has a common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

(1) With regard to claim 1, Foschini discloses in Fig. 1, a method for use in a system that is adapted to communicate a primitive data stream, the primitive data stream including a plurality of sub-streams, the method comprising the step of: transmitting at least a portion of a processed sub-stream, the processed sub-stream representing one of the plurality of sub-streams, the processed sub-stream including a plurality of strata, each stratum of the processed sub-stream representing a respective sub-stream component of the one sub-stream (col. 4, lines 28-65).

(2) With regard to claim 2, Foschini also discloses wherein at a particular time the strata

that comprise the processed sub-stream are concurrently applied to one transmit antenna (col. 4, lines 46-51).

(3) With regard to claim 3, Foschini also discloses wherein the transmitting comprises transmitting the portion wherein the transmitting step of the processed sub-stream from the start of a signal burst until the end of the signal burst (col. 4, lines 51-55).

(4) With regard to claim 7, Foschini also discloses the method of claim 1, further comprising the steps of: dividing each sub-stream into the respective plurality of sub-stream-components; encoding and modulating each sub-stream component to obtain the strata; and combining the strata representing one of the pluralities of sub-stream-components to form one of the processed sub-streams (col. 4, lines 36-65).

(5) With regard to claim 10, Foschini also discloses a method for use in a system that is adapted to communicate a primitive data stream, the primitive data stream including a plurality of sub-streams each including a respective plurality of sub-component data streams, the method comprising the step of: transmitting at least a portion of each of a plurality of processed sub-streams, each one of the processed sub-streams representing a respective one of the sub-streams, each processed sub-stream including a plurality of strata, each stratum of each processed sub-stream representing a respective one of the sub-stream-components of one of the component data streams represented by that processed sub-stream (col. 4, lines 28-65).

(6) With regard to claim 11, claim 11 inherits all limitations of claim 10 above. Furthermore, Foschini also discloses in Fig. 1, wherein: the system is a multiple output system having at least two transmit antennas (45-1 thru 45-N); and at a particular point in time each of

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the processed sub-streams is applied to a respective one of the transmit antennas (col. 4, lines 46-65).

(7) With regard to claim 12, claim 12 inherits all limitations of claim 10 above.

Furthermore, Foschini also discloses wherein the system is a multiple output system having at least two transmit antennas; and the transmission of the processed sub-streams is started concurrently on the at least two transmit antennas (col. 4, lines 46-65).

(8) With regard to claim 13, claim 13 inherits all limitations of claim 10 above.

Furthermore, Foschini also discloses wherein the transmitting step comprises transmitting the portion of the processed sub-stream from the start of a signal burst until the end of the signal burst (col. 4, lines 51-55).

(9) With regard to claim 17, Foschini also discloses the method of claim 10, further comprising the steps of: dividing each sub-stream into the respective plurality of sub-stream-components; encoding and modulating each sub-stream component to obtain the strata; and combining the strata representing one of the pluralities of sub-stream-components to form one of the processed sub-streams (col. 4, lines 36-65).

(10) With regard to claim 30, Foschini also discloses in Fig. 1, a transmitter for use in a system adapted to communicate at least portion of a primitive data stream, the primitive data stream including a plurality of sub-streams, the transmitter comprising: a first stratifier (20, 30-1 thru 31-N, 40) that stratifies one of the component data streams into a processed sub-stream, the processed sub-stream component having a plurality of strata, each stratum of the processed sub-stream representing a respective one of a plurality sub-stream component of the one sub-stream (col. 4, lines 28-45)

(11) With regard to claim 31, Foschini also discloses in Fig. 1, wherein the first stratifier comprises; a demultiplexer (20) having an input that receives the one sub-stream and a plurality of outputs each for outputting one of the of sub-stream-components; a plurality of encoder/modulators (30-1 thru 30-N) each having an input coupled to one of the outputs of the demultiplexer, each encoder/modulator encodes and modulates at least a respective one of the sub-stream-components to obtain its respective stratum; and a combiner having a plurality of inputs each coupled to an output of one of the encoder/modulators and an output for outputting the processed sub-stream.

6. Claims 20-28, 55, 56 are rejected under 35 U.S.C. 102(e) as being anticipated by Wallace et al. (US. Patent 6,473,467 B1).

(1) With regard to claim 20, Wallace et al. discloses a method for processing a received signal that includes at least a portion of at least one processed sub-stream, each processed sub-stream representing a respective one of a plurality of sub-streams, each sub-stream including a respective plurality of sub-stream-components, each processed sub-stream including a plurality of strata, each stratum of each processed sub-stream representing a respective one of the plurality of sub-stream-components of the particular sub-stream represented by that particular processed sub-stream (col. 9, lines 28-48; col. 21, lines 15-35), the method comprising the steps of: (a) decoding at least a portion of one of the strata to obtain at least a portion of its respective sub-stream component, (b) removing the decoded portion of the one stratum from the received signal; and (c) decoding at least a portion of another of the strata to obtain at least a portion of its respective sub-stream component (col. 24, line 25-col. 25, line 30).

(2) With regard to claim 21, Wallace et al. also discloses the method of claim 20, further comprising the steps of: (d) removing the decoded portion of the other stratum from the received signal; and (e) repeating decoding step (c) and removing step (d) until all of the sub-stream-components represented by the strata in the received signal are decoded (col. 25, lines 9-30).

(3) With regard to claim 22, Wallace et al. also discloses, wherein: the stratum decoded in decoding step (a) is portion of a first processed sub-stream; the stratum decoded in decoding step (c) is portion of the first processed sub-stream after the decoded portion of the one stratum has been removed in step (b); and the signal comprises at least two processed sub-streams; and the method further comprising the steps of: (f) decoding at least a portion of one of the strata that is part of another processed sub-stream; (g) decoding at least a portion of another of the strata that is part of the other processed sub-stream (col. 24, line 25-col. 25, line 30).

(4) With regard to claim 23, Wallace et al. also discloses wherein: decoding step (f) occurs concurrently with decoding step (a); and decoding step (g) occurs concurrently with decoding step (c) (col. 24, line 25 - col. 25, line 30).

(5) With regard to claim 24, Wallace et al also discloses wherein decoding steps (f) and (g) occur after decoding step (c) (col. 24, line 25 - col. 25, line 30).

(6) With regard to claim 25, Wallace et al. also discloses wherein: at least one transmit feature of said each stratum of one of the processed sub-streams is different from transmit features of the other strata of the one processed sub-stream; the transmit features of the stratum decoded in decoding step (a) are the same as the transmit features of the stratum decoded in decoding step (f); and the transmit features of the stratum decoded in decoding step (c) are

the same as the transmit features of the stratum decoded in decoding step (g) (col. 25, lines 9-30).

(7) With regard to claim 26, Wallace also discloses wherein at least one transmit feature of said each stratum of one of the processed sub-streams is different from transmit features of the other strata of the one processed sub-stream (col. 25, lines 9-30).

(8) With regard to claim 27, Wallace et al. also discloses wherein the transmit feature comprises a bit rate; the stratum decoded in decoding step (a) having a bit rate that is lower than the bit rate of the other strata that are part of the same one of the processed sub-streams; and the stratum decoded in decoding step (c) having a higher bit rate than the bit rate of the stratum decoded in decoding step (a) (col. 27, line 62- col. 28, line 13).

(9) With regard to claim 28, Wallace et al. also discloses wherein: the transmit feature comprises a power level; the stratum decoded in decoding step (a) having a power level that is higher than the power level of the other strata that are part of the same one of the processed sub-streams; and the stratum decoded in decoding step (c) having a lower power level than the power level of the stratum decoded in decoding step (a) (col. 27, lines 13- 33).

(10) With regard to claim 55, claim 55 inherits all limitations of claim 20 above.

(11) With regard to claim 56, claim 56 inherits all limitations of claims 21 and 55 above.

7. Claims 41-54 are rejected under 35 U.S.C. 102(e) as being anticipated by Wallace et al. (US Patent 6,473,467 B1).

(1) With regard to claim 41, Wallace et al discloses in Fig. 6, a receiver comprising: at least one receive antenna each receive antenna having an output for outputting a receive antenna signal, each receive antenna signal including at least a portion of at least one processed sub-

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stream, each processed sub-stream representing a respective sub-stream, each processed sub-stream including a plurality of strata, each stratum of each processed sub-stream representing a respective one of a plurality of sub-stream-components of the respective sub-streams of the processed sub-stream; a processor having an input coupled to the outputs of the receive antennas, the processor adapted to: obtain a receive signal from the receive antenna signals; decode at least a portion of one of the strata to obtain at least a portion of its respective sub-stream component; remove the decoded portion of the stratum from the receive signal; and decode at least a portion of another of the strata to obtain at least a portion of its respective sub-stream component ([0125-0126]).

(2) With regard to claim 42, Wallace et al. also discloses wherein the processor comprises a strata processor (MIMO processor) for decoding the stratum ([0015]).

(3) With regard to claim 43, Wallace et al. also discloses wherein the processor further comprises an encoder/modulator having an input coupled to the output of the strata processor, the encoder/modulator adapted for re-encoding the decoded sub-stream component to obtain its respective stratum; and a combiner for subtracting any re-encoded stratum from the received signal ([0123-0126]).

(4) With regard to claim 44, Wallace et al. also discloses wherein the processor is further adapted to remove the decoded portion of the other stratum from the receive signal; and repeat the removing and the decoding of at least a portion of another stratum until all sub-stream-components represented by the strata in the received signal are decoded ([0123-0126]).

(5) With regard to claim 45, Wallace et al. also discloses wherein the processor is adapted to decode the strata of a first and a second processed sub-stream concurrently ([0125]).

(6) With regard to claim 46, Wallace et al. also discloses wherein at least one transmit feature of each stratum of one processed sub-stream is different from transmit features of the other strata of the same one processed sub-stream; the strata decoded concurrently have the same transmit features ([0125]).

(7) With regard to claim 47, Wallace et al. also discloses wherein processor is adapted to decode the strata of a second processed sub-stream after decoding the strata of a first processed sub-stream ([0123-0125]).

(8) With regard to claim 48, Wallace et al. also discloses wherein at least one transmit feature of each stratum of one processed sub-stream is different from transmit features of the other strata of the same one processed sub-stream ([0125]).

(9) With regard to claim 49, Wallace et al. also discloses wherein the transmit feature comprises a bit rate ([0142]).

(10) With regard to claim 50, Wallace et al. also discloses wherein the transmit feature comprises a power level ([0137]).

(11) With regard to claim 51, Wallace et al. also discloses wherein the receiver is part of a base station of a wireless communication system ([0036]).

(12) With regard to claim 52, Wallace et al. also discloses wherein the receiver is part of a terminal ([0036]).

(13) With regard to claim 53, Wallace et al. also discloses wherein the wireless communication system is a CDMA system ([0036]).

(14) With regard to claim 54 Wallace et al. also discloses wherein the wireless communication system is a OFDM system ([0048]).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-6, 8, 9, 14-16, 18, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini (US Patent 6,097,771) as applied to claims 1 and 10 above, and further in view of Walton et al. (US 2002/0154705 A1).

(1) With regard to claim 4, as noted Foschini discloses all limitations of claim 1 above. Foschini does not however teach wherein at least one transmit feature of said each stratum of the processed sub-stream is different from transmit features of the other strata of the processed sub-stream.

However, Walton et al. teaches wherein at least one transmit feature of said each stratum of the processed sub-stream is different from transmit features of the other strata of the processed sub-stream ([0134]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Walton et al. to modify the invention of Foschini for a higher efficiency, higher performance wireless communications system.

(2) With regard to claim 5, claim 5 inherits all limitations of claim 4. Furthermore, Walton et al. also teaches wherein the transmit feature is bit rate ([0140]).

(3) With regard to claim 6, Walton et al. also discloses wherein the transmit feature is power level ([0137]).

(4) With regard to claim 8, Walton et al. also discloses wherein the processed sub-stream complies with a CDMA standard ([0137]).

(5) With regard to claim 9, Walton et al. also discloses wherein the processed sub-stream complies with a OFDM standard ([0129]).

(6) With regard to claim 14, claim 14 inherits all limitations of claims 4 and 10.

(7) With regard to claim 15, claim 15 inherits all limitations of claim 14. Furthermore, Walton et al. also teaches wherein the transmit feature is bit rate ([0140]).

(8) With regard to claim 16, Walton et al. also discloses wherein the transmit feature is power level ([0137]).

(9) With regard to claim 18, Walton et al. also discloses wherein the processed sub-stream complies with a CDMA standard ([0137]).

(10) With regard to claim 19, Walton et al. also discloses wherein the processed sub-stream complies with a OFDM standard ([0129]).

10. Claim 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini (US Patent 6,097,771) as applied to claim 31 above, and further in view of Jon (US Patent 6,389,000 B1).

(1) With regard to claim 32, as noted above, Foschini discloses all limitations of claim

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31. Foschini does not however teach 32. The transmitter of claim 31, wherein a bit rate of each stratum of the processed sub-stream is different from bit rates of the other strata of the processed sub-stream; the demultiplexer is a variable rate demultiplexer.

However, Jon teaches in a method for transmitting and receiving high speed data, wherein a bit rate of each stratum of the processed sub-stream is different from bit rates of the other strata of the processed sub-stream; the demultiplexer is a variable rate demultiplexer (col. 6, lines 16-26).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Jon to modify the invention of Foschini as a method of offering better resolution in supported data rates (col. 3, lines 59-63).

11. Claim 33 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini (US Patent 6,097,771) as applied to claim 31 above, and further in view of Walton et al. (US 2002/0154705 A1).

Claim 33 inherits all limitations of claim 31 above. As noted above Foschini discloses all limitations of claim 31. Foschini does not explicitly teach a power level of each stratum of the particular processed sub-stream is different from power levels of the other strata of the particular processed sub-stream; and each of the encoder/modulators is operable to produce the strata such that the power level of each stratum of the particular processed sub-stream is different from the power levels of the other strata of the particular processed sub-stream.

However, Walton et al. teaches a power level of each stratum of the particular processed sub-stream is different from power levels of the other strata of the particular processed

sub-stream; and each of the encoder/modulators is operable to produce the strata such that the power level of each stratum of the particular processed sub-stream is different from the power levels of the other strata of the particular processed sub-stream ([0137]).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Walton et al. to modify the invention of Foschini as a known method of increasing efficiency and performance in a wireless and voice and data communication system.

12. Claims 34-40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Foschini (US Patent 6,097,771) as applied to claim 34 above, and further in view of Walton et al. (US 2002/0154705 A1).

(1) With regard to claim 34, claim 34 inherits all limitations of claim 30 above. As noted above Foschini discloses all limitations of claim 30 above. Foschini does not however teach wherein the transmitter further comprises a primary signal demultiplexer having an input for receiving the primary signal and a plurality of outputs each for outputting one of the sub-streams; a further plurality of stratifiers, each stratifier capable of stratifying at least one of the component data streams into a respective processed sub-stream, each stratum of one of the processed sub-streams representing a respective one of a plurality of sub-stream-components of the respective sub-stream of the one processed sub-stream.

However, Walton et al teaches in Fig. 5A, wherein the transmitter further comprises a primary signal demultiplexer (510) having an input for receiving the primary signal and a plurality of outputs each for outputting one of the sub-streams ($S_1 - S_5$); a further plurality of

stratifiers, each stratifier capable of stratifying at least one of the component data streams into a respective processed sub-stream (512a-512e; 532a-532e), each stratum of one of the processed sub-streams representing a respective one of a plurality of sub-stream-components of the respective sub-stream of the one processed sub-stream.

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to apply the method as taught by Walton et al. to modify the invention of Foschini as a known method of increasing spectral efficiency and improved performance in a communication ([0011-012]).

(2) With regard to claim 35, Walton et al. also teaches wherein at least one transmit feature of said each stratum of the processed sub-stream is different from transmit features of the other strata of the processed sub-stream ([0134].

(3) With regard to claim 36, Walton et al. also discloses wherein the transmitter is part of a base station of a wireless communication system ([0036]).

(4) With regard to claim 37, Walton et al. also discloses in Fig. 3, wherein the base station has a plurality of antennas.

(5) With regard to claim 38, Walton et al. also discloses wherein the transmitter is part of a terminal ([0036]).

(6) With regard to claim 39, Walton et al. also discloses wherein the wireless communication system is a CDMA system ([0009]).

(7) With regard to claim 40, Walton et al. also discloses wherein the wireless communication system is a OFDM system ([0048]).

Allowable Subject Matter

13. Claim 29 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is a statement of reasons for the indication of allowable subject matter:

The instant application discloses a method and apparatus for increasing the capacity of a multiple-input and/or multiple-output system. A search of prior art records has failed to teach a method comprising “ wherein decoding step (a) comprises separating out and decoding the at least portion of the one stratum to obtain the at least portion of its respective sub-stream component; removing step (b) **comprises re-encoding the decoded respective sub-stream component to obtain the one stratum and subtracting the re-encoded one stratum from the received signal**; and decoding step (b) comprises separating out and decoding the at least portion of the other stratum to obtain the at least portion of its respective sub-stream component “ as taught in claim 29.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a.) Sinha et al. discloses in US Patent 6,292,917 B1 Unequal Error Protection For Digital Broadcasting Using Channel Classification.

b.) Raleigh et al. discloses in US Patent 6,452,981 B1 Spatio-Temporal Processing For Interference Handling.

c.) Boleskei et al. discloses in US Patent 6,442,214 B1 Diversity Transmission Based On Linear Transform Processing Of Transmitted Information.

d.) Doberstein et al. discloses in US Patent 6,424,678 B1 Scalable Pattern Methodology For Multi-Carrier Communication System.

e.) Schilling discloses in US Patent 6,466,610 Spread-Spectrum, Space Diversity And Coding Antenna system And Method.

f.) Ling et al. discloses in US 2003/0043928 A1 Coding Scheme For A Wireless Communications System.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Lawrence B. Williams

lbw

December 13, 2004



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SUPERVISORY PATENT EXAMINER
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